EXHIBIT

A

CHELSEA STREET BRIDGE

CHELSEA RIVER (CREEK)

Boston, Massachusetts

FINAL CASE REPORT
Truman-Hobbs Action

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I. EXECUTIVE SUMMARY

The Chelsea St. Bridge (CSB) is a bascule bridge which spans Chelsea River (Creek) carrying vehicular traffic between the Town of Chelsea and East Boston. The Chelsea River is the major distribution point for gasoline and heating oil in the Boston area. The present bridge was authorized in 1935, completed in 1937, and its fender system was altered in 1960. The draw provides an opening of 96 feet which is not adequate for the safe passage of tankers. The CSB has a history of hazarding and unreasonably obstructing commercial navigation on the waterway. The Coast Guard has documented 98 bridge allisions since 1972. Since 1975, the bridge has been out of service to vehicular traffic for approximately 1480 days due to damage caused from vessel allisions. The bridge allisions have been disruptive and costly to both commercial users of the waterway and the automobiles and trucks who depend on the bridge and roadway.

The original bridge design did not anticipate the need to accommodate large 600 to 800 feet length tankers with beams of up to 157', stringent environmental laws, and requirements for double hull/double bottom tankers as mandated by the Oil Pollution Act of 1990.

Navigational benefits total over $100 million on an annualized basis compared to an estimated annualized cost of $3.5 to $4.5 million for a vertical lift bridge providing a 380' horizontal opening. Therefore, an annualized benefit/cost ratio of over 20 to 1 is anticipated. This estimate includes benefits identified by the Massachusetts Division of Energy Resources report (Appendix H of the PCR) in the prevention of a catastrophic accident which would close the waterway and increase petroleum costs throughout the Boston region.

II. PURPOSE AND EXTENT OF STUDY

This report constitutes the final phase of the Chelsea Street Bridge (CSB) Truman-Hobbs Action. The purpose of this investigation is to present information which substantiates the assertion that the CSB is an unreasonable obstruction to navigation and to determine the type of alterations required to meet the needs of present and future navigation.

Navigational benefits considered include: 1) savings realized from a reduction in the costs associated with bridge allisions (WARS); 2) savings realized from a reduction in vessel transit times through the zone of the bridge (TTS); 3) savings due to increased vessel carrying capacities (BES); 4) and those related to certain other costs (COS) attributable to the obstructive character of the bridge.

A detailed description of the purpose and extent of the study was discussed in section II of the PCR.

III. SUMMARY OF COMPLAINTS AND PUBLIC HEARING COMMENTS

The complaints regarding the Chelsea Street Bridge (CSB) have taken many forms from letters, to meetings, to news articles. The concerns raised and solutions implemented have been attempts at quick fixes to address the immediate or most apparent concern without getting to the root of the problem - that the bridge was too narrow to adequately provide for the needs of navigation.

On 19 August 1992 a public hearing, as announced in the Federal Register of 1 July 1992 and in Public Notice 1-785, was held in Boston City Hall at 7:00 PM in order to gather information and comments regarding the proposed alteration of the Chelsea Street Bridge (CSB) under the Truman-Hobbs Act of 1940.

Thirteen (13) of the 38 individuals attending the proceeding made verbal presentations and 12 written exhibits were submitted. The Coast Guard received 11 written comments during the public

hearing comment period. (3 documents submitted as exhibits at the public hearing were identical to those sent to the Coast Guard during the Public Notice comment period.) Of the 20 written comments received, 6 came from political officials, 5 from public agencies, and 9 were submitted by various petroleum industry organizations.

Enclosure (7) of the final report contains a verbatim transcript of the public hearing, copies of the exhibits (A-N), and copies of letters received by the Coast Guard during the comment period, enclosures (O-Y).

The following is a summary of the main points raised at the public hearing and in the letters received during the comment period. No comments in opposition to replacement of the CSB were received. All comments supported the contention that the CSB is obstructive to navigation. Many respondents commented on the negative local and regional economic impacts caused by the CSB.

Stephen J. Remen of the MA Division of Energy Resources (MDOER) explained that the restraints imposed by the CSB increase the inbound cost of transporting petroleum products by at least ½ to 1 cents per gallon producing an additional annual cost of $9 to $18 million to retail consumers. (see enclosure Ga/Gb)

[redacted] of the Massachusetts Petroleum Council cited that "the bridge continues to exact an annual toll of at least $15 to $35 million dollars a year in increased shipping costs for petroleum transported up the Chelsea Creek." Mr. [redacted] further noted that a more accurate estimation of the impact of the bridge on transportation costs, must reflect an increase in cost of petroleum for all the petroleum terminals in Boston Harbor. Thus the bridge's affect "has in all likelihood been as high as $40 to $50 million dollars a year." (see enclosure H of Public Hearing Record (Encl 8))

Several respondents commented on the high economic costs of compliance with the Oil Pollution Act of 1990 if the CSB is not replaced. Mr. [redacted] of the Kirby Corporation, stated that "the limitations imposed by the bridge directly inhibit the construc-

tion of US flag tank ships which comply with the requirements of the OPA 1990 and its implementing regulations." Mr. [redacted] also states that "the narrow span presents an unreasonable risk of striking the bridge and ... of a resulting pollution incident." (see enclosure U of Public Hearing Record (Encl 8))

Many persons expressed their concern that the narrow opening of the CSB may precipitate a catastrophic allision which could have devastating environmental and economic consequences. Industry representatives estimate that the retail price of petroleum products would increase 1½ to 10 cents per gallon. MDOER estimates that a 6 month waterway closure would increase consumer spending on petroleum products from $13.7 million to $235 million dollars. Such an incident would produce a significant loss in disposable income and result in a net loss of 1,944 jobs in the Boston area.

MASSPORT, the Cities of Boston and Chelsea, and the Massachusetts Petroleum Council cited the need for construction activities to minimize roadway and waterway closures due to the importance of the present bridge in providing access between the cities of Boston and Chelsea, to Logan Airport, and the oil terminals upstream of the bridge. The Army Corps stated that Coast Guard replacement of the CSB may influence their present plans to dredge Chelsea River to 38 feet in favor of deepening the waterway to 40 feet.

A summary of the concerns and complaints is presented in Section III of the Preliminary Case Report (PCR). Appendix A of the PCR provides copies of the letters of complaint submitted to the Coast Guard.

IV. HISTORICAL BACKGROUND

The first bridge to appear on Chelsea River (Creek) was the Chelsea St. Bridge (CSB) in 1834. This swing bridge provided a 36' navigational opening and was rebuilt in 1868 with the same

dimensions and alignment. The great Chelsea fire of 12 April 1908 destroyed the bridge. Later that year a swing bridge was built with a 60' navigational opening. The alignment was chosen for compatibility with the Boston & Albany Railroad's Grand Junction Bridge located 100 feet upstream.

The present CSB was completed, in 1936, at an estimated cost of $400,000. However, upon completion, the bridge provided only a 70' wide navigational channel for marine traffic. This 70' clearance limitation remained until 1960 when the Boston & Albany Railroad Company was ordered by the Secretary of the Army to remove, from the waterway, certain parts of the Grand Junction Railroad Bridge which were no longer used for rail traffic. The intent was to increase the horizontal clearance for marine traffic to approximately 100'. In conjunction with said removal the ACOE recommended that the fender system of the CSB be altered to afford a horizontal clearance, of 96' between fenders, normal to the axis to the channel. The restoration of the fender was funded under the Truman-Hobbs Act in conjunction with removal of parts of the Grand Junction Railroad Bridge which was accomplished between November 1960 and June 1961. Portions of the railroad bridge still remain near both banks of Chelsea River.

Section VI and Appendix B of the PCR contain the CSB detailed historical background, chronology and appropriate CSB permits, amendments, and orders to alter.

V. DESCRIPTION OF EXISTING BRIDGE AND DATA ON BRIDGE OPENINGS

The Chelsea St. Bridge (CSB) is one of three vehicular bridges crossing the navigable portion of Chelsea River (Creek). The bridge carries vehicular traffic over Chelsea River between Chelsea and East Boston. The bridge was designed to carry trolley cars as well as automobiles and trucks.

The superstructure is comprised of five approach and one bascule span. Beginning at the East Boston abutment, the span lengths are 66'0", 42'6", 140'0", 66'0", 66'0", and 66'0", respectively. From abutment to abutment the total length of the bridge is 446.5'. The bascule span is a 140' single leaf Strauss-Heel-Trunnion bascule bridge with an overhead swinging counterweight. In the full open position (82.5 degrees), the tip of the bascule span overhangs the East Boston fender by approximately 15'. The vertical clearance to low steel at the fender is 112.75' above MHW in the full open position. In the closed position, the bridge provides a vertical clearance of 19' at mean low water and 9' at mean high water.

The bridge opens for all marine traffic except small powerboats. A compilation of the bridge openings from 1978 through 1989 is provided in Appendix C of the PCR which shows that in 1989 the bridge opened an average of 234 times per month. The Massachusetts Petroleum Council in Enclosure H to the Public hearing record stated "As a result of diminishing supply of "Chelsea Class" ships, we have seen an increasing amount of traffic due to lightering of larger vessel... If Chelsea Creek Bridge is not replaced we must expect an exponential growth in barge traffic in years ahead. Captain Abrams, MSO Boston stated that for the period 1 October 90 to 1 October 1991 there were 1,551 tankship and tank barge transits of Chelsea Creek. This was up 120 transits from the previous 12 month period.

The bridge is in generally fair condition. The East Boston and Chelsea fenders are in a deteriorated state of repair and provide minimal protection to the bridge due to numerous vessel allisions. Due to Coast Guard civil penalty assessments and other actions, reconstruction and upgrade of the entire fender system at an estimated cost of $3.8 million, began in July of 1992.

A detailed description of the bridge and its structural condition is presented in Section V. of the PCR.

VI. DESCRIPTION OF WATERWAY AND NAVIGATION

Boston Harbor is New England's largest seaport. Chelsea River (Creek), one of seven waterways that comprise the Port of Boston, is the border between the Town of Chelsea on the west bank and the cities of East Boston and Revere to the east (see figure 2 of PCR). It is subject to tidal fluctuations of 9 to 11'.

The present Army Corps of Engineers (ACOE) authorized project depths for the Port of Boston varies from 35 to 40 feet at mean low water. The mouth of the Chelsea River is located at the confluence of the Main Ship Channel and the Mystic and Chelsea Rivers. From this area, known as the Inner Confluence, the Chelsea River proceeds for a navigable distance of approximately 2.6 miles. The marked Federal Channel is 35 feet deep and is generally 225 to 430 feet wide with a turning basin 800 feet wide and 1,000 feet long.

In a 10 September 1992 letter the Army Corps of Engineers indicated that replacement of the CSB would trigger a review of their present plans to deepen Chelsea River to 38 feet and may allow justification to deepen the channel to 40'. Chelsea River was last dredged to 35 feet in 1962. The Corps of Engineers project map (Figure 4 of PCR) and an excerpt of NOAA Chart 13272 (Figure 5 of PCR) show the location and alignment of the channel. From these documents, it is readily apparent that marine traffic must contend with various problems in delivering petroleum product to the facilities on Chelsea River. These include a relatively narrow, winding river with bridges like the CSB that restrict marine traffic.

Two moveable bridges cross the navigable portion of Chelsea River and are the only bridges that vessels must transit to service the upstream petroleum terminals. The P.J. McArdle Bridge (Meridian St. Bridge) at mile 0.3 is a double leaf bascule which provides a horizontal clearance of 175' and a vertical clearance of 21' above MHW in the closed position. The CSB, at

mile 1.2 is a single leaf draw bridge with a horizontal clearance of only 96' between fenders and a vertical clearance of 19' and 9' at MLW and MHW, respectively, in the closed position. The bascule span overhangs the East Boston fender by approximately 15'. This overhang is obstructive to vessels with mast, boom, crane and pilot houses heights greater than 112' 9". Most tankers transiting the bridge, especially after discharging all or a portion of the cargo must be listed 2 to 3 degrees away from the East Boston side to clear the bascule span. Because the span is so narrow, assist tugs must be released from alongside the tankers and be positioned on either side of the bridge to adjust the position and orientation of the tanker as it transits the CSB.

The waterway is almost exclusively used for the transport of petroleum products by oil tankers assisted by tugs and tug/barge combinations. The three year averages (1988,1989,1990) for bridge transits of tankers, tug & barge combinations, and motor tankers are: 151, 538, and 45, respectively.

The 'Chelsea Class' tankers in use today range from 25 Deadweight Tons (DWT) to 40 DWT. This tanker is limited by the bridge horizontal clearance and safety restrictions to beams of 90.5 feet while overall lengths are approximately 560'.

A detailed description of the waterway and navigation is provided in Section VI. of the PCR. A breakdown of marine traffic and bridge openings from 1978 to 1989, from CSB Bridge logs, is presented in Appendix C of the PCR.

VII. DATA ON ACCIDENTS

Bridge Administration has documented 98 vessel allisions occurring between 1972 and 1991. Several of these accidents have resulted in bridge closures to vehicular traffic ranging from 2 weeks to 2½ years (See WARS 2 of PCR). One allision in December of 1991 resulted in a serious injury to a crew member of the Tug Guido during transit of the bridge. (See Appendix E of the PCR)

VIII. DATA ON COMMERCE

Commerce on Chelsea River is dominated by the 9 active oil distribution terminals located on its banks, 8 upstream of the bridge and 1 downstream. As noted in Massachusetts Petroleum Council's statement in Enclosure H to the Public Hearing Chelsea Creek houses one of the largest concentrations of petroleum storage tanks in New England. These facilities play a vital role in supplying gasoline to consumers within a 100 mile radius of Chelsea River and heating oil to consumers within a 50 mile radius. According to Mr. Rosadini, Gulf Oil Vice-President of Operations, the restrictive nature of the Chelsea Street Bridge (CSB) is a regional problem effecting the supply and distribution of petroleum products to Gulf's customers in Vermont and New Hampshire as well as those in the immediate Boston area (see enclosure 8).

The primary commodities moving on Chelsea River are refined oil products consisting of kerosene, heating oil, gasoline, jet fuel, and residual fuels. Chelsea River oil distribution terminals supply the Boston region with 55% of its home heating oil and gasoline, 68% of jet fuel for Logan and other airports, and 20% of its residual fuel. A summary of cargo and vessel data for Chelsea River from ACOE Waterborne Commerce is presented in Table 2 and 3 of the PCR. Table 2 shows that commercial navigation on Chelsea River between 1980 and 1989 carried an average of 8,649,592 short tons of maritime commerce. In 1989, total short tons carried was 7,888,946.

Chelsea River fuel supplies are split evenly between U.S. and foreign sources. Domestic sources from the Gulf states rely, primarily, on oil pipeline and barges from the New York City area for delivery to Chelsea River terminals while most foreign oil is transported by tanker. U.S. Flag tankers do however, carry about 10% of the product tonnage arriving at the Chelsea terminals. Of the foreign sources Venezuelan and Canadian refineries supply about 70% of the refined petroleum product purchased by the Chelsea River oil facilities.

For a detailed discussion of the importance of Chelsea River terminals to the Massachusetts economy see Appendix H of the PCR. Chelsea River commerce is also discussed in the BES section of the PCR beginning on page 54. Quantitative information can be referenced in the PCR-Tables 1,2,and 3, BES Table 1, and Appendix C (1989 ACOE Waterborne Commerce).

IX. NAVIGATION IMPACT STUDY

To qualify as an unreasonable obstruction, under the Truman-Hobbs Act, a benefit/cost ratio of one or greater is required for improvements to meet the present and future needs of navigation. The navigation benefits are discussed individually in the following parts of this section.

A. Water Accident Reduction Savings (WARS)

WARS is the projected annual monetary saving resulting from a reduction in allisions with the bridge. These annualized savings were developed by first examining the cost of repairs to the vessels, the bridge and its appurtenances (WARS 1). The second portion of this savings is developed by analyzing the cost to vehicle users of the bridge (CVUB) which were caused by the vessel allisions and disrupted by land in lieu of marine service (WARS 2 and 3).

A period of 20 years (1972 to 1991) was chosen as a statistically valid time period for the Chelsea Street Bridge (CSB). During this time period a total of 98 vessel allisions have been documented (See Appendix E of the PCR). Capt. Abrams, U.S. Coast Guard Marine Safety Office - Boston stated at the public hearing - "even taking into consideration the navigation restrictions we have imposed, obviously for the sake of safety, and to avoid allisions...we still had 36 allisions with the bridge, ... since the time of restrictions going into place... that comes out to one incident every 2.1 months. It's not an acceptable risk."

1. WARS 1 Vessel/Bridge Allision Damage Reduction

The cost of damages to the CSB, its fender system, and the vessels involved in bridge allisions total $10,940,612 in 1991 dollars for the 20 year period - 1972 to 1991. This gives an annualized cost savings of $492,328 (See WARS Table 1 of PCR (encl 9)).

2. WARS 2 and 3 Bridge Allision Cost to Vehicular Users.

Closure of the bridge to vehicular users imposed time delay costs (WARS 2) and additional operating costs (WARS 3) because vehicular traffic was forced to reroute normal transportation patterns.

The cost to vehicular user of the bridge (CVUB) are examined in two components that are then combined to give the total vehicular user cost. In examining each of these components truck and car operations are computed separately. The CVUB is presented in WARS Tables 2A, 2B, 3A and 3B of the PCR using principles and standards used by FHWA and the National Research Counsel. The same 20 year period as used for WARS 1 and used to calculate the annualized CVUB. However, no correction factor is assumed because replacement of the bridge intended to eliminate major accidents that would remove the bridge from service. Between 1972 and 1991 vehicular users were prevented from using the bridge for 1480 days. The total cost to vehicular users of the bridge during the time period studied (WARS 2 and 3) was a total of $55,953,524 with the annualized cost savings being $2.8 million. Encl (7) of this report contains formulas for calculation of WARS 1, 2 and 3. For a detailed description of WARS methodology see Section VIII of the PCR.

Total WARS annualized benefits are $3,290,004.

B. Transit Time Savings

Transit Time Savings (TTS) quantifies the cost of time delays imposed on commercial navigation in the bridge zone. The difficulty and danger of moving a tanker, tug and barge (T&B), or motor tanker (MT) through the 96' draw of the Chelsea St. Bridge (CSB) which causes Captains, pilots and tug & barge operators to

use extra care and diligence. This action translates into increased transit time and higher operating costs for all vessels transiting the bridge zone. TTS is the measure of monetary savings that could be realized by alteration of the CSB and elimination of the present restriction.

There are two main factors in the determination of TTS. The first is the estimation of time delay in the zone of the bridge. The second is the operating costs of the vessels which transit the bridge. These factors are then multiplied to arrive at a TTS for each particular vessel type.

1. TTS 1 Product Vessel Transit Delay Savings

Delay time is the difference, in minutes, between the time required to safely transit the bridge zone with and without the navigational restriction. Delay time, for each vessel type, was determined by responses to survey questionnaires distributed to facility and marine managers of the oil terminals on the waterway, and information from pilots and towing companies. This data was supplemented by observing vessel transits through the bridge zone. The results show average delay in the bridge zone for MT of 15 minutes; T&B 20 minutes; and tankers at 25 minutes.

TTS Table 1 of the PCR presents the transit time savings (TTS) for MT, T&B, and tankers, averaged for the number of each type of vessel which transited during 1989 and 1990. The total average annual delay cost was then doubled to account for both inbound and outbound savings. T&B and assist tug operating costs were obtained through consultation with commercial users of the waterway. Operating cost for tankers was obtained from Corps of Engineers compiled data. TTS 1 = $245,426 annualized.

2. TTS-2 Tanker Assist Tug Transit Differential Savings

TTS Table 2 of the PCR presents additional transit time savings for tugs assisting large tankers transiting the CSB. Tug assistance to move vessels to points above the CSB is charged at a higher rate than assistance for vessels bound for berths downstream of the bridge. The CSB accounts for an increased cost of $243 per tug/transit. The number of transits and the average

number of tugs were determined for 1989 and 1990. The total average annual differential cost was then doubled to account for both inbound and outbound savings. TTS 2 = $277,822 annualized.

3. TTS 3 Tug & Barge Assist Tug Transit Differential Savings

TTS Table 3 of the PCR presents the transit time savings when T&B units are required to have assist tugs. The same cost differential of $243 per tug/transit applies as used for TTS 2. TTS 3 = $49,937 annualized.

Encl (7) of this report contains formulas for calculation of TTS 1, 2, and 3. For a detailed explanation of TTS methodology see Section VIII of the PCR (encl 9).

The total TTS annualized benefits are $573,185.

C. Benefits of Economy of Scale (BES)

Benefits derived from economies of scale refers to the use of larger capacity tanker vessels to reduce petroleum product transportation costs. As noted in [redacted] of Massachusetts Petroleum Council's comments the CSB's "narrow span has given rise to increasingly expensive restrictions on the size of vessels that can carry their cargoes to the upper reaches of the Chelsea. ... This CSB's 'negative economic' factor is certainly not limited to Boston Harbor. Because many of the ships destined for the creek also off-load petroleum products at other New England ports, the Chelsea beam limitation effectively denies the New England ports the shipping cost reductions achievable through economies of scale from larger vessels." (Exhibit H to Public Hearing Transcript (encl 8)).

The high transportation cost for petroleum products received at the Chelsea River facilities are not born by the petroleum companies themselves. Rather, these costs are passed on to the consumers of Chelsea River fuels. Massachusetts Division of Energy Resources (Appendix H of the PCR or Encl. 8 of this report) estimates the cost of this transportation surcharge at between $9 and $18 million dollars (1991 dollars). [redacted] of the Massachusetts Petroleum Council stated that "it is safe to assume that the bridge continues to exact an annual toll of at

least $15 to $35 million dollars a year in increased shipping costs for petroleum transported up Chelsea Creek. ... In fact, we believe this number is quite conservative. We believe the true cost for Chelsea Creek bridge must reflect an increase in cost of petroleum through out the entire harbor. ... the Bridge's 'toll charge' has in all likelihood been as high as $40 to $50 million dollars a year." (see Exhibit H of the Public Hearing Record (Encl. 8). Our independent estimate, on the lower end of the above calculations, attributes a BES cost savings of $11,129,296 annually in 1991 dollars. Encl 7 of this report contains formulas for (see Section VIII of the PCR for a detailed discussion of BES).

D. Certain Other Savings

The Chelsea St. Bridge (CSB) has an extensive history of hazarding and delaying navigation. In 1985, as a result of several costly bridge allisions, an array of pilot complaints, and general safety concerns, the Coast Guard Captain of the Port/ Marine Safety Office - Boston established a Safety Zone and stringent regulations (33 CFR 165.120) for all vessels transiting the bridge zone. These regulations pertain to vessels operating within a 100 yards upstream and downstream of the CSB. The regulations place limits on: the size of vessels transiting the zone; the movement of vessels if a vessel is docked at the Mobil Oil terminal (downstream of the bridge); the time of day a vessel may transit the bridge; the freeboard of outbound vessels (ballasting requirements); and the quantity of tugs which must accompany vessels moving through the bridge. Appendix F of the PCR contains a copy of Chelsea River safety regulations.

Cost savings relating to the elimination of the above restrictions, necessitated by the hazardous conditions created by the narrowness of the CSB navigational opening and by the overhang of the bascule girders, are addressed below as savings (COS 1 thru Cos 7). These savings are a measure of the additional operating costs imposed on petroleum carriers and the oil facilities due to the obstructive character of the CSB.

Vessel delay data were developed through questionnaires completed by petroleum facility managers. The completed questionnaires have not been provided because the information is of a propriety nature. A sample questionnaire is provided in Appendix F of the PCR.

COS 1: Anchorage Delay Cost

COS 1 addresses delays imposed on inbound tankers waiting for favorable conditions, tide, or daylight to proceed upstream of the bridge. The tidal delay in this case is waiting for slack water or the start of the ebb tide to increase vessel control. Based on oil terminal data, the average inbound delay was 4 hours. An annualized delay cost savings for COS 1 is $397,499.

COS 2: Mobil Terminal/ Draw Realignment Savings

The center of the Mobil Oil terminal dock is located on the East Boston side of the waterway about 675 feet downstream of the Chelsea St. Bridge (CSB). The East Boston fender line is approximately 90' off the face of the Mobile Oil Terminal dock. The narrowness of the CSB draw and its close proximity to the Mobil dock necessitated certain safety zone restrictions (33CFR 165.120), which contribute to delays experienced by marine traffic. A total of 66 separate incidents of delays due to vessel vessels at Mobile's Terminal in 1990. These delays averaged 8 hours. However incidents, as cited by Crest Tankers, show that delays of 25 hours or more have occurred with an unacceptable frequency. Based on 1990 data an annualized COS 2 of $384,912 was achieved.

COS 3: Daylight, Tide, and Ballast Delays - Outbound

In addition to the delays previously discussed in COS 1 and COS 2 outbound vessels and some vessels shifting berths within the port must be ballasted to comply with safety zone requirements. Outbound delays were determined by estimating the length of time a vessel would require to offload its product without the restrictions caused by the present CSB. This was estimated to be 23 hours. Based on a review of the bridge logs it was determined that tankers, other than small coastal tanker

spent an average of 37 hours upstream of the CSB. Thus, an average delay of 14 hours was computed giving an annual cost of $1,545,362 for COS 3.

COS 4: Cost of Extra Tugs

The basis of COS 4 is that widening the CSB navigational draw span will eliminate the cost differential between facilities on Chelsea River and the quantity of assist tugs will decline. This cost was analyzed from two aspects - first from the need for extra tugs to assist tanker (COS 4A) and secondly, the cost of extra tugs to assist tug and barge units (COS 4B). The bridge logs show that tankers presently require, on average, 3.7 tugs per tanker passage. Occasionally, 5 tugs are required to make safe passage through the bridge. If the CSB were replaced only 2 or 3 assist tugs would be required to assist vessels with bridge transits and in docking. For the purpose of this analysis, extra tugs are defined as the quantity of tugs exceeding 3 tugs per transit. The annual cost for extra tugs assisting tankers is $268,304 (COS 4A) and for assisting tug and barge units is $269,616 (COS 4B)

5. COS 5/COS 6 Tanker Design/Construction Savings

If the CSB is not replaced than a specially designed group of Chelsea Class ships must be built to comply with Coast Guard regulations under the Oil Pollution Act of 1990 (OPA 90). These regulations require that the double hulls be at least 2 meters wide and the double bottoms be at least 2 meters deep. Due to the uniquely restrictive beam limitations of the CSB double-hull vessels for Chelsea River use will have to be customized at an extra cost of between 10% and 15% to design and build. As noted in Commissioner Remen, of MDOER, remarks - "at present, it is not certain whether new, double hulled tankers will be built small enough to fit through the CSB. If they are not , traffic will be restricted to barges, which are smaller than tanker, which will necessitate additional trips, further increasing costs. If more 'lightering' or unloading of oil product from tankers to barges occur just outside Boston Harbor, there will be increased chance

of oil spills and associated environmental damage.

[illegible] of Northeast Petroleum stated in Exhibit I of encl 8 - " However with these vessels beginning to be replaced it is becoming increasingly harder to arrange transportation that meets these criteria. This is because vessels are typically designed to meet the maximum product lifting capacity and provide the most economical form of transportation. The replacement size vessel will not fit or be able to transit the CSB as it exists today,"

In order to begin replacing the single-hull vessels as they are phased out by the OPA 90 regulations 2 US flag and 10 foreign flag ships will have to be built per year (see BES Table 15 of Section VIII of the PCR (encl 9) for a detailed description of vessel replacement rates).

As with BES, it is necessary to consider U.S. Flag ships differently than foreign flag ships. The Jones Act mandates that only U.S. Flag vessels can pick up product at U.S. ports and deliver it to another U.S. port. There are 218 U.S. Flag tankers in the World Tanker fleet today but only 64 are "Boston Suitable". Chelsea River facility operators have stated that 50% of the time their requests for pick-up and delivery of U.S. Gulf Oil are not met because of a lack of availability of U.S. Flag tankers. Kirby Corporations letter dated 3 September 1992 (Exhibit U in encl 9) stated that Sabine Transportation Company, (a subsidiary of Kirby) operates six U.S. flag tankships engaged in coastwise trade, primarily between ports along the Gulf of Mexico, Caribbean Basin and the U.S. East coast. ... The limitations imposed by the bridge directly inhibit the construction of U.S. flag tankships which comply with requirements of OPA-90."

The surcharges on design and construction for the replacement Chelsea class tanker fleet is $12,381,000, for US flag, and $24,762,000, for foreign flag vessels on an annualized basis.

6. COS 7 Savings From Prevention of Catastrophic Allision

The risk of a catastrophic bridge allision is not insignificant. Captain Abrams, U.S. Coast Guard Marine Safety Office, Port of Boston stated, "it's incredible that we have not had the side of a ship or the side of a barge split open when contacting either the fendering system ... or the bridge" (see Encl 8). The bridge and its fendering system sustained 98 documented allisions in the 20 year study period (1972-1991). Several of these incidents were serious enough to take the bridge out of service to roadway traffic for long periods of time.

Captain Doherty of Citgo Petroleum Corporation in Exhibit N of encl 8 stated that "the requirement for 'double-hull' tankers will significantly reduce the availability of 'Boston Bingo' class tankers as older tankers are removed from service by statute. This will...make the harbor dependent upon an aging class of tankers, rather tan allowing Boston t take advantage of the new, environmentally safer OPA-90, double hull vessels.

Based on past record of allisions, closure of Chelsea River to marine traffic resulting from a severe allision is not improbable. Industry sources estimate that if an accident at the bridge closed the waterway to ship traffic, they might have sufficient petroleum product supplies in inventory to meet only 3 to 10 days of demand (depending on their inventory level, time of year and type of product). Captain Abrams and others at the public hearing stated that the Chelsea Street Bridge posed an unacceptable risk.

MDOER estimates the cost of a 6 month waterway closure at between $13.7 and $235 million dollars. A $100 million dollar shift in consumers discretionary spending in to spending on petroleum products, over a 2 year period, is a conservative estimate of the savings from prevention of a catastrophic allision. This estimate is based on the sharp increase of inbound transportation cost as the supply system becomes dependent on trucks. The MDOER report is available in Appendix H of the PCR or Encl 8 of this report.

E. Other Benefits

1. Replacement of the CSB will permit domestic oil refineries (US Gulf states) to compete more effectively with foreign refineries for US Northeast fuel markets. Under the Jones Act only US flag tankers can pick-up product at US ports and deliver to another US port. Chelsea River operators report that 50% of the time their requests for pick-up and delivery of US Gulf oil are not met because of a lack of availability of US flag tankers.

Due to this lack of US flag tanker availability Gulf refineries and their customers on Chelsea River are forced to rely on time consuming, higher cost transportation methods. Today, 90% of US Gulf refined product arrives in New York via pipeline from Texas. From New York it is then loaded on to barges or coastal tankers for the trip up to Boston Harbor and Chelsea River. The 30 day delivery timeline for US product, arriving via pipeline, is extremely costly (in terms of the time value of money) in comparison to foreign purchases which can be delivered reliably within 1 week.

The CSB limits the sales of US refineries in the Northeast market as well as the ability of the US Jones Act tanker fleet to operate effectively in the domestic coastwise trade.

2. Massachusetts Division of Energy Resources (MDOER) estimates that in the event of a six month waterway closure, caused by a catastrophic vessel allision, a loss of 1,949 jobs would be expected as consumers reduce spending to offset the increased costs of fuel as well as the state and local governments losing tax revenue from lost income (see MDOER report in PCR or Encl 8 of this report).

Encl. (7) of this report also contains formulae for navigation benefits. Additional descriptions of methodology for WARS, TTS, BES, and COS are found in Section VIII of the PCR (encl 9), entitled Computation of Navigation Benefits.

K. NAVIGATION BENEFIT COMPUTATIONS

Summary: Annualized Navigation Benefits

I.	WARS 1 Vsl/Bridge Allision Damage Reduction	$ 492,328
	WARS 2 Time Delay Cost	$ 1,700,198
	WARS 3 Vehicle Operating Cost Increase	$ 1,097,478
	WARS Total	$ 3,290,004
II.	TTS 1 Product Vsl Transit Delay Savings	$ 245,426
	TTS 2 Tanker Assist Tug Transit Differential Savings	$ 277,822
	TTS 3 Tug & Barge Assist Tug Transit Differential Savings	$ 49,937
	TTS Total	$ 573,185
III.	Benefits Economy of Scale	
	BES 1 Tanker 35-50 DWT Foreign	$ 5,715,351
	BES 2 Tanker 35-50 DWT U.S.	$ 762,928
	BES 3 Tanker 50-80 DWT Foreign	$ 3,974,642
	BES 4 Tanker 50-80 DWT U.S.	$ 676,375
	BES Total	$ 11,129,296
IV.	COS 1 Inbound Anchorage Delay Costs	$ 397,499
	COS 2 Mobil Terminal/Draw Realign Savings	$ 384,912
	COS 3 Outbound - Delay Costs	$ 1,545,362
	COS 4A Cost Extra Tugs Assist Tankers	$ 42,768
	COS 4B Cost Extra Tugs to Assist T & B	$ 269,616
	COS 5 Design/Const. Saving US Flag Ships	$ 12,381,000
	COS 6 Design/Const. Saving Foreign Flag Ships	$ 24,762,000
	COS 7 Prevention of Catastrophic Allision	$ 50,000,000
	COS Total	$ 89,783,157
	Navigation Benefit Total	$104,775,642

XI. DISTRICT FINDINGS

A. It is the First Coast Guard District's finding that the Chelsea Street Bridge is an unreasonable obstruction to navigation and qualifies for replacement under the Truman Hobbs Act of 1940.

B. Minimum Bridge Clearances for Replacement Bridge

The minimum horizontal clearance for the bridge is 380' and a minimum vertical clearance of 175' in the full open position. However consideration should be given to totally spanning the waterway and providing a vertical clearance of 185' if depth of structure permits the towers to be under the 250' height approved by FAA. The Distance between abutments of the present bridge is approx. 446 feet. The abutments are on the banks of Chelsea River.

In determining the minimum horizontal and vertical clearance for a replacement Chelsea Street Bridge, the future trends and needs of navigation for at least the next 50 to 75 years were anticipated. The following basic assumptions were made:

1. Boston Harbor is and will continue to be a major New England port for receipt of cargo and petroleum products.

2. Chelsea River (Creek) will continue to be a key distribution point for petroleum products.

3. Improvement of Boston Harbor channels will continue and vessels with drafts up to 45 feet will routinely visit Boston.

4. The McArdle Street Bridge will be replaced.

5. Tanker beams will increase due to OPA-90 requirements, berth/length restrictions, and environmental laws.

6. Requirement for assistance of at least 2 tugs will continue.

7. Of major importance is to maintain free flow for both marine and land transportation during construction.

8. Existing bascule span must remain fully operational during construction and closures to marine traffic minimized with maximum period, less than 60 hours at any single time.

Presently tankers going upstream of the bridge are limited to 90.5' beam. As noted in the Preliminary Case Report the beam, length and draft of the world tanker fleet were analyzed by deadweight tonnage (DWT). Vessels over 100,000 DWT are not anticipated to use Boston Inner Harbor. Today tankers in the 40K to 100K DWT size have beams (widths) from 85 to 157 feet with a large number in the Panamax (105-106') beam class. However, since almost none of the petroleum products bound for New England is transported through the Panama Canal wider beam vessels have been built to minimize vessel drafts, lightering of vessels and to accommodate off-loading dock length or draft restrictions. OPA-90 double hull and double bottom requirements will cause vessels with beams less than 135' to increase their overall width by about 12 feet. Vessels with beams greater than 135 are anticipated to be able to reconfigure vessel compartments without loss of carrying capacity or an increase in beam. This will mean that the average tanker will have a beam of 105'-125' for 40K to 100K dwt tankers. However, several tankers with beams of 157' and length of approximately 690 have been specially built to service the Northeast.

The waterway in the vicinity of the existing bridge is approximately 445 feet wide. In applying the Corps of Engineers criteria for the design of channels, it becomes readily apparent that the minimum horizontal clearance for the bridge should be the width of the waterway.

The Corps of Engineers Manual EM 1110-2-1613 entitled "Hydraulic Design of Deep-Draft Navigation Projects" was used as one method of analyzing the minimum horizontal clearance for a proposed bridge. Deep-Draft channels are ones which provide for the movement of vessels with drafts of more than 15 feet and which are designed for open-water navigation. Table 7-1 General Criteria for Channel Widths is reproduced below for information and reference.

Table 7-1

General Criteria for Channel Widths

Minimum Channel Width in % of Beam

Location	Vessel Controllability V. Good	Good	Poor	Channels with Yawing Forces
Maneuvering Lane, straight channel	160	180	200	Judgement
Bend 26-degree Turn	325	370	415	Judgement
Bend 40-degree Turn	385	440	490	Judgement
Ship Clearance	80	80	80	100 but not less than 100'
Bank Clearance	60	60+	60+	150

Table 1 below provides minimum channel widths for one-way traffic movement by ocean-going tankers in a straight channel with good maneuverability and under control of a skilled and diligent pilot. Under these conditions the maneuvering lane width is 160% of the design vessel beam. This value is applicable for channels with no cross-currents or cross-winds, both of which are encountered at this site. The Corp's study also notes that additional width allowance should be made for congested channels or channels expected to have traffic with hazardous cargoes. The latter is applicable. Thus, the minimum standards would not apply for Chelsea Street Bridge.

Table 1

Vessel Width	Bank Cl (70%)	X2	Maneuver Lane Good	Poor	Straight Channel Good	Poor
105	74	148	189	210	337*	358 *
125	88	176	225	250	401	426
135	95	190	243	270	433	B-B
157	110	220	283	314	B-B	B-B

Note: B-B Bank to Bank- value exceeds width of waterway

* Due to the hazardous cargoes carried and in order for tugs to be fully effective they should remain tied up one each side of the vessel and be able to extend out at a 90 degree angle when necessary. Therefore minimum horizontal clearance should be 380'.

However, the present and proposed bridge is considered located on a bend in the waterway because the straight reach approaching the bridge from each side is less than 5 times the length of the longest ship (800') anticipated to use the waterway. Applying that criteria the available bank to bank clearance requirements is exceeded in all cases for the optimum channel.

If a bank to bank approach is not taken then the draw needs to be aligned so that marine traffic can have easy access whether a vessel is moored at the Mobile Terminal downstream or not.

An additional factor that can be considered in determining the width and location of the opening is the existing bulkhead for the Northeast Petroleum Corporation's Old Jenny Dock. This could permit the tower piers to project about 40-50' inside the Chelsea Bank. Similarly, the tower piers on the East Boston side could be built slightly (10-20') off the East Boston Bank due to the bulkhead alignment of the MWRA facility. However, the effect of the counterweight arc and the ability to fully open the bascule span has to be kept in mind. But, it is not recommended that the horizontal clearance be less than 380' between fenders.

In the open position a vertical lift bridge should provide a minimum vertical clearance of 175' above MHW. If obtainable a vertical clearance of 185' above MHW would be preferred as long as the towers would not have to exceed 250' above MSL. This is due to the close proximity to the airport. FAA has approved 250' towers. The vertical clearance in the closed position is not as critical as the other clearances. However, the vertical clearance in the closed position should be above the 100 year flood and should be able to accommodate small recreational or patrol type vessels with air draft of 8-10'.

XI. DISTRICT RECOMMENDATIONS

1) That the Chelsea Street Bridge be altered to provide for the free, easy, and unobstructed passage of present and future navigation on Chelsea River, pursuant to the Truman-Hobbs Act of 1940.

2) That a vertical lift bridge be chosen over other bridge types due to mitigation of construction impacts, cost, and operation considerations. See Appendix D of the PCR for a detailed discussion of the advantages of the vertical lift design.

3) That the replacement bridge provide a minimum horizontal clearance of 380 feet; a minimum vertical clearance in the open position of 175-185 feet at MHW and 8 to 10 feet at MHW in the closed position.

Encl. (7): CALCULATION OF BENEFITS (FORMULAS)

A. WARS

1. WARS 1 - Vessel/Bridge Allision Damage Reduction

a. WARS Table #1 on page 33 of PCR (encl 9) provides the annual damages to the vessels, the Chelsea Street Bridge structure and its fender system. The yearly accident costs are adjusted to 1991 dollars using FHWA structures index.

b. Annualized Cost = .9 (Total Damage (1991 $)/20) The .9 multiplication factor is used because the increase in bridge width is intended to eliminate 90% of the bridge allisions and all of the catastrophic ones.

2. WARS 2: Time Delay Costs.

a. The formula incorporates accepted FHWA principles of time valuation.

b. WARS TABLE 2A in the PCR provides the various values used in determining the yearly time delay costs (TDC_y). The formula used to calculate the TDC_y is given below:

$$TDC_y = D_o \times P_c \left(\frac{M}{60} \times \frac{PWR}{2}\right) + D_o \times OP_c \left(\frac{M}{6} \times \frac{PWR}{2}\right) + D_o \times OP_t \left(\frac{M}{60} \times TW\right)$$

Where:
- TDC_y - Time Delay Cost for a specific year i.e. 1975
- D_o - Days of Outage
- Pc - Peak hour ADT for Cars
- M - Additional time in minute to transit detour
- PWR - Prevailing Wage Rate - Boston/Chelsea
- OP_c - Off-peak ADT for cars
- OP_t - Off-peak ADT for trucks
- TW - Average Trucker wage - Boston/Chelsea

Example:

$$TDC_{75} = 210 \times 5178 \left(\frac{20}{60} \times \frac{\$5.20}{2}\right) + 210 \times 5562 \left(\frac{10}{60} \times \frac{\$5.20}{2}\right) + 210 \times 1390 \left(\frac{10}{60} \times 6.78\right)$$

$$TDC_{75} = 942,396 + 506,142 + 329,847 = 1,778,385$$

3. WARS 3: Vehicular Operating Costs

a. WARS Table 3A provides the various values used in determining the added yearly vehicle operating costs (AOC_y) due to cars and trucks having to be rerouted when the CSB was out of service due to vessel allisions. The car and truck operating costs are comprised of fuel cost, oil, maintenance, depreciation and insurance on a cents per mile basis. The formula used to calculate AOCy is given below:

$$AOC_y = (D_o \times ADT_c \times AM \times C_{oc}) + (D_o \times ADT_t \times AM \times T_{oc})$$

Where: AOC_y - Added Operating Cost for specific year
D_o - Days bridge out of service during year
ADT_c - Average Daily Traffic - Cars
ADT_t - Average Daily Traffic - trucks
AM - Added miles which equals 3.2 to 7 miles (3.2 used)
C_{oc} - Car operating cost in cents/mile
T_{oc} - Truck operating cost in cents/mile

b. WARS Table 3B summarizes the car and truck vehicle operating costs by year. The yearly totals are then again multiplied by the Consumer Price Indexes for Transportation to put all costs in 1991 dollars so they could be annualized. From WARS Table 2B the total time delay in 1991 dollars is $34,003,955 and the added vehicle operating cost from WARS table 3B in 1991 dollars is $21,949,569.

WARS 20 YEAR BRIDGE ALLISION COSTS

WARS 1	-	Vessel/Bridge Damage Cost	= 10,940,612
WARS 2	-	Total Time Delay	= 34,003,955
WARS 3		Added Vehicle Operating Cost	= 21,949,569

Total WARS annualized navigation benefit = $3,290,004

WARS = (.9) WARS 1 + WARS 2 + WARS 3
WARS = $492,328 + $1,700,198 + $1,097,478
WARS = **$3,290,004**

B. Transit Time Savings

1. TTS 1 Product Vessel Transit Delay Savings

a. TTS Table 1 of the PCR presents the transit time savings (TTS) for MT, T&B, and Tankers. The total delay cost for each type unit was determined using the following formula:

Annual passages X (minutes of delay/60) X hourly operating costs.

Data for 1989 and 1990, were calculated and then averaged for a total average delay cost for each type of vessel. The total average delay cost was then doubled to account for both inbound and outbound delays.

2. TTS 2 Tanker Assist Tug Differential Savings

a. TTS Table 2 of the PCR presents transportation time savings when tugs assist a tanker bound upstream of the CSB. Tug rates are based on pier locations, day of the week, and the time of day on a per tug transit basis. A different average rate exists for vessels being moved to points above or below the CSB. Averaging the rates shows that the CSB accounts for an increased cost of $243 per tug/transit. Using bridge logs, it was determined that approximately 3.7 tugs were used per tanker bridge transit. Thus a transportation time savings for tugs attending tankers is calculated as follows:

$243 per tug/per transit X 3.7 tugs X #of tanker transits.

These calculations were made for 1989 and 1990. The two TTS values were averaged and then the average doubled to account for inbound and outbound trips.

3. TTS 3 T&B Assist Tug Differential Savings

TTS Table 3 of the PCR presents the transit time savings when T&B units are required to have assist tugs when transiting the CSB. The same cost differential of $243 per tug/transit applies as for TTS Table 2 of the PCR. The following formula was used to calculate the TTS for tugs assisting T&B units:

 # extra tugs X per tug/per transit differential operating costs.

Data from two years, 1989 and 1990, was used and an average was taken to determine the average TTS for tugs assisting T&B units. Since an actual count was taken during both inbound and outbound transits, the savings is not double as in TTS 1 and 2.

Total TTS annualized navigation benefit

TTS = TTS 1 + TTS 2 + TTS 3
TTS = $245,426 + $277,822 + $49,937
TTS=$573,185

C. BES: Benefits of Economy of Scale

BES 1-4: The cost per long ton to transport fuels in a 50 DWT vessel was subtracted from the higher cost (per long ton) of transporting fuels in the 35 DWT vessel. This difference is listed as 35 - 50 DWT. The same subtraction was done for the differing transportation cost of 50 and 80 DWT vessels. US and Foreign flag BES were calculated separately because of the significantly higher operating cost of US flag vessels and greater reliance on foreign supplies. For a detailed discussion of methodology used to calculate BES see the PCR pg. 54-81.

D. COS: Certain Other Savings

1. COS 1: Anchorage Delay Cost

Hours Delay	X	Vessel Passages	X	In Port Operating Cost/Hr	=	Anchorage Delay Cost

2. COS 2: Mobil Terminal Delays

# of Delays	X	Average Hours Delay	X	At Sea 35 DWT Operating Cost

3. COS 3: Daylight, Tide, and Ballast Delays-Outbound

Avg. Delay	X	Vessel Passages	X	At sea vessel Operating Cost	=	Total Delay Cost

4. COS 4a: Cost of Extra Tugs Assisting Tankers

Extra Tugs	X	Tug Operating Cost per Transit/per Tug	=	Total Cost of Extra Tugs

COS 4b: Cost of Extra Tugs to Assist T&B Units

#Extra Tug Trips	X	Tug Operating Cost per Transit	=	Total Extra Tug Cost

5/6. COS 5/6: Design/Construction Saving US/Foreign Flag Ships

a.US Flag Design/Const. surcharge:
Replacement Cost (RC) of a US Flag 35 DWT tanker (see Appendix G of the PCR for ACOE cost data) is $61,905,000.
RC X 2 SHIPS X 10% DESIGN/BUILD SURCHARGE = $12,381,000

b.Foreign Flag Design/Const. surcharge:
RC of a Foreign Flag 35 DWT tanker is $24,762,000.
RC X 10 SHIPS X 10% DESIGN/BUILD SURCHARGE = $24,762,000

7. COS 7: Savings From Prevention of Catastrophic Allision
Based on MDOER estimate of the cost of a waterway closure.
MDOER estimates this cost at $100,000,000 over a 2 year period.
$100,000,000 divided by 2 = $50,000,000 annualized benefit.

EXHIBIT B

VOLUME I Pages 1 to 74

UNITED STATES DISTRICT COURT

DISTRICT OF MASSACHUSETTS

CA Nos. 03-12416-RWZ

03-11651-RWZ

- x

CITY OF BOSTON,

Plaintiff,

vs.

K-SEA TRANSPORTATION, LLC,

and K-SEA TRANSPORTATION CORP.

Defendants.

- x

CA No. 03-11666-RWZ

- x

CITY OF BOSTON,

Plaintiff,

vs.

RED STAR TOWING & TRANSPORTATION

COMPANY, INC., REINAUER TRANSPORTATION

COMPANIES, LLC, HYGRADE OPERATORS, INC.,

and BOSTON TOWING COMPANY,

Defendants.

- x

concerning that bridge have sort of come under you as Commissioner of Public Works for the City of Boston; is that correct?

A. Yes, that's very correct.

Q. When did you first, if you can recall, become aware that there were some issues with a high number of allisions with that bridge?

MR. FINN: Objection. Go ahead and answer it.

A. Oh, that was a long time ago, when I first came in 1968. I couldn't possibly tell you the month or the day or what have you, but the situation with a narrow channel opening through the Chelsea Street Bridge was made known to me real early in the game and the problems associated with vessels getting larger and larger and that opening being 100 feet or just a little less, and I was aware of that for many, many years.

Q. So shortly after you became appointed as Commissioner of Public Works for the City of Boston, did the issue of the opening of the channel within the Chelsea Street Bridge and the size of vessels applying the waters under that bridge was made known to you; is that a fair statement?

various bridges, the two, McArdle and the Chelsea.

The Chelsea, because of its narrowness, especially as the vessels got larger, was unable to do that. They couldn't put tugboats on both sides of the bridge and guide it through which required an extra knowledge of the captain or whoever was in charge of the vessel when it went through there. They were more than aware of it and had to just exercise extra caution going through that narrow slip.

Q. Did you become aware at some point after you took over there was an investigation undertaken by the United States Coast Guard on under the Truman Hobbs Act with respect to the Chelsea Street Bridge?

A. Yes.

Q. Do you recall the general time frame in which that investigation was commenced by the United States Coast Guard?

A. Well, you're referring to as an investigation. I guess that's an acceptable term. I was having many conversations with the, I guess you would have called him the in charge of the bridges in this region, can't remember the name at the moment, but it was followed up by a mandate or an order, if

and get going.

But when Mr. Romney made that fine suggestion, that he would pay the bill, then the control, and the answers to those questions can best be determined by the people who are going to advertise an award. Certainly the City is going to play a major role in knowing what's going on, but without being bureaucratic, I don't have control of that decision. I am not the person now that we've changed the plans and specs and sent it over to the Mass. Department of Public Works, Mass. Highway Department. I'm not the person that can give the marching order to say, "Advertise it this week."

Q. So within the last couple of years, the Commonwealth of Massachusetts made the offer to fund the new bridge construction and that was accepted by the City of Boston; is that correct?

A. Yes.

Q. And at present time, I gather in what you're saying, it's up to the Commonwealth and the people who deal with it, this issue at the Commonwealth, to decide when this project is going to go out to bid; is that essentially what's happening?

A. Yes. I mean, there is no discord between

those would be my initial suggestions.

MR. CHIARELLO: Can you spell any of those for the record?

THE WITNESS: No. I just don't know Luisa's spelling.

Q. As far as you know, though, the project is at some point in the future going to go forward, this bridge will be rebuilt according to designs that meet the order to alter that was issued back in 1992 by the United States Coast Guard?

A. Oh, most certainly, most certainly.

Q. Now, in terms of funding for this new project, I understand that you've indicated the Commonwealth has agreed to pay for it. Will Truman Hobbs money be included in that or is this entirely a project to be funded by the Commonwealth of Massachusetts?

A. Great question. The Truman Hobbs money in some recent meetings, I'm talking within the last, three, four months, we had meetings with the Coast Guard, Federal Highway Administration, and the Mass. Highway Department, and there was legislation being drafted by the United States Coast Guard to see if the Truman Hobbs money could be passed from the Coast

be very involved, and I'm going to use some Truman Hobbs money for that, if the legislation goes as proposed.

Q. The City is the entity required to comply with the Truman Hobbs order to alter, and for that reason, you have made a determination that the City needs to be involved in the construction management of this bridge when the work is done; is that fair to say?

A. That's fair to say, yes.

Q. At present time, is there any money from the City that's envisioned to be expended in this project, whenever it may take place, aside from anything that may be turned over under Truman Hobbs as you have requested?

A. I think not.

Q. With respect to when the project is going to go forward, as far as you know at present, that's a decision that is going to be made by the Commonwealth; is that correct?

A. That's correct.

Q. Now, are you involved in any decision making as to whether and what type of repairs to the bridge in its present state may or may not be made up

So it was that imminent, and I do remember, as I say, not big, earth shattering, to say, let's just hold off. There is no sense in making whatever the estimate of repairs would have been and then watch it got torn out in a relatively short time frame.

Q. So you say there were no big discussions but some level of decision making there?

A. Oh, yeah. It was conscious. There was no question it was conscious, but it just fell into the category, we had so many discussions going on with the bridge and the Corps of Engineers and everybody and their brother, it just seemed it was a safe condition, usually.

I don't know what happened here. I don't see it on a day by day basis, but usually when one of these takes place, it's checked out, and if there is anything broken, divers go down, make it safe, anything else, and you move on and either make a repair or not.

And in this particular instance, we, as I say, felt it would be being torn out and still hope that will be torn out. I do think we lost some months because of the two or three issues that came

occur with some degree of frequency until the order could be complied with?

A. I don't know if there was discussions, were just a fact of life. There were allisions before the order, there were allisions after the order, and none of that -- well, the answer to your question, again is, I guess I can speak for myself, that if anybody had asked me, "While you're waiting for the Truman Hobbs funding is there a possibility of more allisions before it's ready to be advertised?" I would have said, "Very probable, hopefully not too often, because there is thousands of vessels that go through there without allisions." But I guess I'm saying too many words.

But, yeah, I never knew it was going to take so many years to get Truman Hobbs funding. As I say, I learned that term the day they made it available to me and never spent five minutes of a relatively long career knowing how it works but know now it's an extremely slow funding source. That's what I can tell you.

Q. Now, did you have the opportunity before you came here today to review the testimony of Jim Burke?

bridge in the channel to approach the second bridge, your tail end can cause some kind of problems back at Chelsea Street as they're trying to adjust to make their next run. I learned those two things.

As far as the tugboats are concerned, it's my belief, stand to be corrected, it's my belief that ideally you could take a certain size vessel, and I'm sure there are some, there are certain vessels where you can have a boat in one corner, a tugboat in one corner, and they can steer it through.

But once you get to a certain width and there is no room, the tugboats lose control, if you will, of it going through the slip, and that's where mother nature, wind, everything else, could take over and whoever is captaining it through that slip. I think I know that.

Q. Are you involved at any level in making decisions as to prosecution of this litigation against the various Defendants or would that be some other department within the City of Boston?

A. Oh, no. As long as I've been there, long before I met John Finn who's representing the City at this particular junction.

MR. ZONGHETTI: Very fine lawyer, by the

MR. ZONGHETTI: We'll mark that Exhibit 1.

(Exhibit 1 marked for identification)

Q. Do you see you wrote way back when in 1992?

A. November 2, 1992, that's my signature and says that, "The City takes no exception to the unreasonable obstruction determination regarding Chelsea Street Bridge. I look forward to cooperating with the Coast Guard to developing an acceptable plan," yes, I read that.

Q. As a result, was the City aware since 1992 that the Chelsea Street Bridge represented an unreasonable obstruction to navigation?

A. They found it was unreasonable obstruction for navigation and the City agreed. We don't take exception to it. Why? Don't ask that question.

Q. Do you agree with the question?

A. Do I agree with what I signed the letter on?

Q. There was no question, but that the Chelsea Street Bridge, at least since that time, represented an unreasonable obstruction to navigation?

A. To some navigation, right, some navigation. I started to make a deal out of it, but there was no sense -- the Chelsea Creek is critical from the point

EXHIBIT

C

Volume: I
Pages: 1-172

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

C.A. No. 03-12416-RWZ
and
C.A. No. 03-11651-RWZ

CITY OF BOSTON,

Plaintiff

vs.

K-SEA TRANSPORTATION, LLC and
K-SEA TRANSPORTATION CORP.,

Defendants

and

C.A. No. 03-11666-RWZ

CITY OF BOSTON,

Plaintiff

vs.

RED STAR TOWING & TRANSPORTATION COMPANY, INC.; REINAUER TRANSPORTATION COMPANIES, LLC; HYGRADE OPERATORS, INC. and BOSTON TOWING & TRANSPORTATION COMPANY,

Defendants

TELEPHONE DEPOSITION OF: JAMES J. BURKE

CLINTON & MUZYKA
One Washington Mall
14th Floor
Boston, MA 02108

February 1, 2006

Virginia Dodge
Registered Professional Reporter

various bridges, the two, McArdle and the Chelsea. The Chelsea, because of its narrowness, especially as the vessels got larger, was unable to do that. They couldn't put tugboats on both sides of the bridge and guide it through which required an extra knowledge of the captain or whoever was in charge of the vessel when it went through there. They were more than aware of it and had to just exercise extra caution going through that narrow slip.

Q. Did you become aware at some point after you took over there was an investigation undertaken by the United States Coast Guard on under the Truman Hobbs Act with respect to the Chelsea Street Bridge?

A. Yes.

Q. Do you recall the general time frame in which that investigation was commenced by the United States Coast Guard?

A. Well, you're referring to as an investigation. I guess that's an acceptable term. I was having many conversations with the, I guess you would have called him the in charge of the bridges in this region, can't remember the name at the moment, but it was followed up by a mandate or an order, if

Q. And if I understand your testimony correctly, there's some degree of discretion on the part of the bridge tender as to whether they document a scrape or not; is that correct?
A. That's correct.
Q. And am I also correct that there's nothing written about, you know, when they should document a scrape? It's up to these folks to determine based upon their experience when something seems more like a damaging scrape than a non-damaging scrape?
A. Yes. That's correct.
Q. Let me ask you, what is the horizontal span of the bridge, Chelsea Street Bridge, presently? Is that about 96 feet?
A. I believe it's 96.5.
Q. And what type of vessels go through that bridge or under that bridge, rather? Or through, I guess.
A. Through the bridge. There are tankers. Barges, tugboats of various sizes. The largest tanker allowed through the Chelsea Street Bridge is 90.5 beam.
Q. And when you say "allowed," are there rules printed somewhere as to what's allowed through?
A. I don't know that for sure. I believe the Coast Guard has some regulations on that, but I don't -- not the

City of Boston.

Q. So that would be the largest vessel allowed through the bridge based upon whatever rules there are, 90.5 feet?

A. Correct.

Q. And that would leave -- in that instance for 90.5-foot, that would leave 6-foot clearance?

A. Correct.

Q. And with respect to tugboats and barges, is it often the case that tugs will come -- or barges will come through with more than one tugboat assisting?

A. Yes.

Q. I assume that you've actually seen on many, many occasions vessels going through this bridge?

A. Yes.

Q. And you indicated earlier in your testimony, if I got it correctly, that vessels scrape the bridge many times; is that correct?

A. That's correct.

Q. And I haven't seen this happen because I'm not up there, but I've been told -- and there will be a question at the end of this -- I've been told that it's not uncommon for vessels, whether it's tug or a tanker, to literally rest up against the bridge as they're going through?

A. Correct.
Q. And that's because even the best navigators, given the tight quarters there, literally need, on occasion, given the tide, the wind and what have you, to rest up against the bridge to make it through?
MR. FINN: Objection.
Go ahead.
A. Correct.
Q. (By Mr. Zonghetti) That's something you've seen, and you've spoken to these folks, right?
A. I don't know if I've spoken to them, but I have seen it.
Q. And is there anything that the City of Boston does to prevent vessels from resting up against the bridge as they go through?
MR. FINN: One second. Gino, I'm going to just object because you're referring to resting up against a bridge, and I'm assuming you really mean the fender.
MR. ZONGHETTI: You know what, John? I appreciate it. You're right.
MR. FINN: I'm not trying to mess this up.
MR. ZONGHETTI: No. It's important to be accurate.

Q. (By Mr. Zonghetti) If we can go back, I was -- I did mean the fender, and I assume that's what you're answering?

A. Yes. The fender. Mm-hmm.

Q. Does the City of Boston do anything to prevent that from happening, or they allow the vessels to rest up against, if they need to?

MR. FINN: Objection.

Go ahead.

A. No. The City of Boston does not object to that. No.

Q. (By Mr. Zonghetti) And I assume they don't object to that because they deem that a necessary practice to safely get through that tight span; is that correct?

MR. FINN: Objection.

Go ahead.

A. Yes.

Q. (By Mr. Zonghetti) Are the vessels that come through, the tankers and the tugboats, which would be the navigational vessels coming through, do they have to have pilots on board?

A. The tankers, yes. I'm not sure about barges.

Q. Okay. And the pilots are members of what pilots association? Do you have any idea?

A. Yes. The Boston Harbor Pilots Association.
Q. And these are folks that are specialized in transiting the waters up that way?
A. That's correct.
Q. And I assume that's the reason that these folks have to be on board to get the tankers through?
A. Yes.
Q. What is the new bridge that's been designed? Do you have any idea what the horizontal span of that is supposed to be?
A. The channel, I believe, is over 200 feet wide.
Q. And the span between the bridge, is that about 380 feet in design?
A. Yes.
Q. So the new bridge would be -- the span would be a difference of between 96.5 and about 380 feet?
A. Something like, yes.
Q. And what is the navigable channel now between the span of the bridge? Do you have any idea?
A. 96.5.
Q. That's the navigable channel?
A. That's from fender to fender.
Q. So the channel as it's presently constituted goes from fender to fender?

A. Correct.
Q. So a vessel going through the Chelsea Street Bridge can literally be in the channel and pressing up against the fender system; is that correct?
A. Yes.

(Off-record discussion.)

Q. (By Mr. Zonghetti) In your experience -- where do you work out of? Do you work at the Chelsea Street Bridge, or do you work somewhere else in an office? I mean, you don't work anymore, so that's probably a bad question.
A. I did not work --
MR. FINN: Mr. Zonghetti, before you went on to that last one, the witness turned to me and was saying something to me about the last question.
Q. (By Mr. Zonghetti) Why don't you put it on record and if we need to go further with it --
A. I'm not 100 percent sure that the navigable channel is 96.5.
Q. Okay. You just don't know the answer to that?
A. Correct.

Q. Fine. Where did you work out of, sir?
A. I worked out of an office, the Public Works office, at 400 Frontage Road in South Boston.
Q. Okay. And how often would you physically get to the Chelsea Street Bridge during the course of a normal workweek, let's say?
A. Most every day. Sometimes three times a week.
Q. And would you go to the other 40-some-odd bridges on that occasion, or was -- that number of times, or was the Chelsea Street something that you would do a little bit more than others or --
A. Well, the four movable bridges took up 95 percent of my time.
Q. Okay. Were any of the other movable bridges -- are any of the other -- I'll withdraw that.
Were any of the other movable bridges that you had to deal with and manage or supervise in Boston declared to be unreasonable obstructions to navigation at any point?
A. Not to my knowledge.
Q. Are you able to quantify in any sense the difference in the number of allisions that the City of Boston has experienced between the Chelsea Street Bridge and the other three bridges, I guess? Was it three others or four?

A. Three.
Q. Three others that you supervised?
A. Correct.
Q. Was there a difference in the number of allisions between those bridges?
A. Yes.
Q. And could you describe as best you can the difference? I assume there were more at the Chelsea Street Bridge?
A. Yes.
Q. And can you give me an order of magnitude?
A. Oh --
MR. FINN: I'm going to object to this, but go ahead.
A. Ten to one.
Q. (By Mr. Zonghetti) Ten to one, meaning --
A. Maybe even more than that. I mean, very, very rarely does any other bridge have an incident.
Q. And so the Chelsea Bridge was a particular, I assume, cause of concern because of this problem with allisions; is that fair to say?
MR. FINN: Objection.
Go ahead.
A. Yes.

Q. (By Mr. Zonghetti) Beyond using the word "many" to talk about the number of scrapes you personally witnessed on whatever number of occasions you would be over at the Chelsea Street Bridge, can you give me a number? Thousands? Hundreds?

A. I would just -- I would just be guessing, but --

MR. FINN: Well, don't guess. If you can give an estimate that you're comfortable with, go ahead.

Q. (By Mr. Zonghetti) Yeah. There's a very fine line between best estimates and guessing, so -- so when you're asking the questions, you say "best estimate," and your attorney says, "Don't guess."

Are you able to give a best estimate?

A. You know, not really. I would -- it would be very hard to put a number on it. One a week.

Q. One a week.

A. A scraping, perhaps.

Q. And that would be on the three times perhaps that you were there a week?

A. Oh, no. I wouldn't say that. No. No.

Q. What I'm saying is if you went there three times a week, you would see one during those three times?

A. Perhaps.

Q. Okay. Did you talk to bridge tenders who worked there on a daily basis about how many scrapes they would see?

A. No. That's not a topic of conversation.

Q. Now, am I correct, in your experience, the many years you worked supervising bridges in Boston, particularly the Chelsea Street Bridge, that you've had instances where, for example, a vessel allided with the bridge and what was thought to be a minor allision ended up with more damage than you anticipated? Is that something that you experienced?

A. No.

Q. No? Did you have the reverse, where there was -- what was thought to be a pretty good hit of the bridge and it was minor damage?

A. On occasion, yeah.

Q. And what I'm driving at, it's not always -- you're not always able to judge whether there's going to be damage or the amount of damage by the severity or the perceived severity of the impact; is that a fair statement?

MR. FINN: Objection.

Go ahead.

A. Yes.

Q. (By Mr. Zonghetti) And sometimes in your experience, there would be damage -- a vessel would strike the Chelsea Street Bridge, and there might be damage that was not visible to the naked eye at the time of the allision?

A. That's correct.

Q. It might be below the waterline; is that correct?

A. That's correct.

Q. Or it might be internal, of internal structures that were not readily seen by people who weren't surveyors and things like that?

A. That's correct.

Q. Did the bridge tenders have any training in identifying damage, or it was just based upon their gut feeling based upon their experience, this was an incident where there's damage, that sort of thing?

MR. FINN: Objection.

Go ahead.

A. Yeah. That would be correct.

Q. (By Mr. Zonghetti) Now, you used the phrase in your testimony "no visible damage" or something to that effect, right?

A. Yes.

Q. You would say -- Mr. Chiarello was crucifying you

with those incident reports, and your response was, in some instances, "no visible damage," and I assume that means that at the time of the incident, whoever was writing the report didn't see damage; is that correct?

A. Correct.

Q. And in instances where there was no visible damage, I assume that's -- that would not result in a survey, meaning if an incident occurred and a bridge tender wrote it up as there being no visible damage, there would be no reason to bring out a surveyor?

A. That's correct.

Q. Have you attended any meetings or had any discussions with any of your peers or supervisors or underlings at the City of Boston discussing the concept of responsibility by vessels for damaging the Chelsea Street Bridge, given that it's been declared to be an obstruction to navigation?

A. No.

Q. That wasn't something that you've ever in your career spoke to anyone about?

A. No.

Q. Bear with me a moment.

The vessels, the tankers and barges going through this bridge, those are vessels that are carrying petroleum

products by and large?
A. Yes.
Q. And are there terminals upstream from the bridge that have to be serviced?
A. Yes.
Q. So these vessels are by and large commercial vessels that are transporting petroleum products, fuel or oil, to these terminals as far as you know?
A. Yes.
Q. So it's necessary commercial traffic; is that fair to say?
A. Yes.
Q. And when you've seen these, for example, tugboats or tankers go through this tight span, is it fair to say that they're typically going really dead slow speeds?
A. Yes.
Q. And that would be the only way you could really get through there safely, I would assume?
MR. FINN: Objection.
Go ahead.
A. Yes.
Q. (By Mr. Zonghetti) Have you ever seen an allision with one of these bridges take place? I'll withdraw that.
Have you ever seen an allision with the Chelsea

Street Bridge take place?
A. No.
Q. And in instances where -- I'll withdraw that.
So you wouldn't be a witness, aside from possibly a witness to damages, to any of the incidents that are involved in the litigations that we're here for today; is that correct?
A. That's correct.
Q. And you would have no reason to fault any of the vessel operators; is that also correct?
A. That's correct.
Q. Now, with respect to the December 2, 2000 incident, I believe that your testimony is that although surveyed, the damage has not been repaired from that incident?
A. That's correct.
Q. And with respect to the December 2, 2000 incident, there is some overlap with the September 5, 2001 incident; is that correct?
MR. ZONGHETTI: If someone would be kind enough to show Mr. Burke --
MR. CHIARELLO: Yeah. He's got it. We just gave it to him.
A. Yes. There is some overlap.
Q. (By Mr. Zonghetti) The overlap would be -- I'm

looking at Exhibit 2 -- would be to the left side of that marked-up fender system on the Chelsea side. Do you see that?

A. Yes.

Q. And that damage from the September 5, 2001 incident was not repaired either; is that correct?

A. That's correct.

Q. Now, there are other instances in which some repairs were effectuated after allisions. I believe you testified that after the February 26, 2004 incident, there was repair; is that correct?

A. Yes.

Q. And I believe you also testified that after the September 8, 2000 incident, there was some repair of lights?

A. That's correct.

Q. What determination goes into whether repairs are effectuated or not?

A. The 9/8/2000 damaged a fender light, some fender lights, and they have to be repaired immediately for safe nav --

Q. Would that be a light that would provide mariners with notice of bridge?

A. That's correct.

Q. So that would be a real safety concern --
A. Yes.
Q. -- is that correct?
A. Correct.
Q. And that was in fact repaired immediately?
A. Yes.
Q. And do you know what the cost of that was?
A. 5,000? Around $5,000.
Q. Okay. And in instances where other repairs were effectuated, was that for similar reason, meaning that there was some safety concern or some hazard to navigation that gave rise to the thought that "We need to repair this immediately"?
A. That's correct.
Q. Who determines whether something's a hazard to navigation that requires immediate repair?
A. I made that determination.
Q. And what do you base that on? Just sort of your sense of having been around these bridges for a long time?
MR. FINN: Objection.
Go ahead.
A. Yes.
Q. (By Mr. Zonghetti) If a piece of the bridge is hanging off into this waterway, this narrow span between

EXHIBIT D

December 2, 2000 Allision

Item No.	Quantity	Repair Item	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
1	22	Electrical Work Bent Units	$ 666	.67	$ 14,666	.74
2	9	Removal of Welds Bent Units	$ 500	.00	$ 4,500	.00
3A	48	Demolition of Damaged Fender Components Bent x Level Units	$ 533	.33	$ 25,599	.84
3B	9	Remove, Store, and Reconnect Structural Steel Bracing Bent Units	$ 4,700	.00	$ 42,300	.00
4	53.22%	Mobilization Percentage Basis = Proportion of Repair Items Attributable to This Incident	$ 25,000	.00	$ 13,305	.00
5	36	Polyethylene Fender Face Linear Feet	$ 196	.00	$ 7,056	.00
6A	1.8	Treated Timber Thousand Feet Board Measure	$ 5,300	.00	$ 9,540	.00
6B	36	Removal of Existing Timber Waler Bent Units	$ 62	.40	$ 2,246	.40
6C	36	Storage and Reset of Existing Timber Waler: Bent Units	$ 91	.20	$ 3,283	.20
6D	0	Disposal of Unsuitable Existing Timber Waler: Bent Units	$ 24	.00	$ 0	.00
6E	0	Provide and Install New Timber Waler Bent Units	$ 127	.20	$ 0	.00

December 2, 2000 Allision (Continued)

Item No.	Quantity	Repair Item	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
7	53	Structural Steel Bent Units	$ 3,310	.34	$ 175,448	.02
8A	0	Miscellaneous Dolphin Repairs Bent Units	$ 1,666	.67	$ 0	.00
8B	53.22%	Crane, Barge, and Crew Percentage Basis = Proportion of Repair Items Attributable to This Incident	$ 390,000	.00	$ 207,558	.00
8C	53.22%	Tugboat Percentage Basis = Proportion of Repair Items Attributable to This Incident	$ 120,000	.00	$ 63,864	.00
9A	1/6	Safety Controls 1/6 of Total	$ 9,500	.00	$ 1,583	.33
9B	69.23%	Safety Signs Percentage Basis = Proportion of Roadway Closure Expenses (for Chelsea Side Only) Attributable to This Incident	$ 7,236	.00	$ 5,009	.48
9C	69.23%	Portable Barricades Percentage Basis = Proportion of Roadway Closure Expenses (for Chelsea Side Only) Attributable to This Incident	$ 3,550	.00	$ 2,457	.67
9D	69.23%	Median Barrier Percentage Basis = Proportion of Roadway Closure Expenses (for Chelsea Side Only) Attributable to This Incident	$ 2,000	.00	$ 1,384	.60
9E	69.23%	Portable Signs Percentage Basis = Proportion of Roadway Closure Expenses (for Chelsea Side Only) Attributable to This Incident	$ 4,400	.00	$ 3,046	.12
9F	69.23%	Traffic Officer Percentage Basis = Proportion of Roadway Closure Expenses (for Chelsea Side Only) Attributable to This Incident	$ 40,000	.00	$ 27,692	.00
10	69.23%	Field Office Percentage Basis = Proportion of Roadway Closure Expenses (for Chelsea Side Only) Attributable to This Incident	$ 4,000	.00	$ 2,769	.20

December 2, 2000 Allision (Continued)

Item No.	Quantity	Repair Item	Unit Price		Amount	
			Dollars	Cents	Dollars	Cents
City Resident Engineer	53.22%	Percentage Basis = Proportion of Repair Items Attributable to This Incident	$ 88,800	.00	$ 47,259	.36
Other Engineers & Administrator	53.22%	Percentage Basis = Proportion of Repair Items Attributable to This Incident	$ 31,200	.00	$ 16,604	.64
SUBTOTAL					$ 677,173	.60
City Design Engineering Cost, 12%	53.22%	Percentage Basis = Proportion of Repair Items Attributable to This Incident	$ 136,242	.91	$ 72,507	.99
Previous Repairs and Adjustments						
TOTAL					$ 749,681	.59

Exhibit E

****
*** ERROR TX REPORT ***
****

TX FUNCTION WAS NOT COMPLETED

TX/RX NO	2810
CONNECTION TEL	~~3458008~~
SUBADDRESS	
CONNECTION ID	BSC GROUP
ST. TIME	01/04 11:53
USAGE T	00'00
PGS.	0
RESULT	NG

0 #018

Ph. -4300
Fax 896-4301

VOLLMER ASSOCIATES LLP
ENGINEERS·LANDSCAPE ARCHITECTS·PLANNERS

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FROM: Mike McCall / John Garieo

PROJECT: 2000-223 Boston Bridge Overview

DATE / JOB NO.: 1-4-01

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OTHER COMMENTS: See attached Scope of Work and Manhour Estimate for inspection and design work for repairs to Chelsea St. Bridge fender + dolphin system (for damage done by Dec. 2 and Dec. 8, 2000

ROUGH ESTIMATE FOR PROJECT INITIATION PURPOSES

ITEM #	DESCRIPTION	VA 1/4/01 EST. TOTAL QUANT.	VA UNIT PRICE	VA COST
106.51	ELEC BRI. B-16-20 L.S.	1	$ 7,000.00	$ 7,000.00
108.422	REM. WELDS LIN FT	25	$ 75.00	$ 1,875.00
112.1	DEM.EX.FEN. B-16-20 L.S.	1	$ 10,000.00	$ 10,000.00
195.1	VERI EX UTILITYS B-16-20 L.S.	1	$ 2,000.00	$ 2,000.00
743	ENG. FIELD OFF. PER MON.	3	$ 2,000.00	$ 6,000.00
851	SAFETY CONT CON OPER. L.S.	1	$ 20,000.00	$ 20,000.00
852	SAFETY SIGNS PER SQ FT	328	$ 15.00	$ 4,920.00
853.1	PORT. BARRICADES PER EACH	7	$ 150.00	$ 1,050.00
853.2	CONC.MED. BARRIERS PERL/F	0	$ 25.00	$ -
856.12	PORT MESSAGE SIGN P.U.D	50	$ 20.00	$ 1,000.00
879.001	CHELSEA POLICE PER HOUR	100	$ 26.00	$ 2,600.00
879.003	CHELSEA POLICE SUN. PER HOUR	50	$ 39.00	$ 1,950.00
955	TREATED TIMBER PER M.B.M.	1	$ 4,750.00	$ 4,750.00
955.11	REM EXIT TIMB WALER PER MBM	0.25	$ 2,400.00	$ 600.00
955.12	ST/RESET EXIS TIMB WAL P M B M	0.25	$ 3,500.00	$ 875.00
955.13	DIS EXI TIMB WALER PER MBM	0.25	$ 500.00	$ 125.00
955.14	INSTALL NEW WALER PER MBM	0.25	$ 3,300.00	$ 825.00
960	STRUC STEEL PER POUND	15000	$ 4.00	$ 60,000.00
999.145	MISC DOLPHIN REP. L.S.	1	$ 10,000.00	$ 10,000.00
	LOW TOTAL			$ 135,570.00
	"McArdle" Factor			1.4
	PROBABLE TOTAL			$ 189,798.00
	"We don't want to be low" Factor			1.5
	HIGH TOTAL			$ 284,697.00